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## NEW AFRICAN ANTS OF THE GENERA *CERAPACHYS*, *PHRYACACES*, AND *SIMOPONE*

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The genera *Cerapachys* and *Phryacaces* are included in the subfamily Cerapachyinae which is of particular interest in connecting the primitive subfamily Ponerinae with the specialized subfamily Dorylinae, the driver ants of the Old World and the army ants of the American tropics. The ants are uncommon outside Australia, and few species are known from Africa. The species of *Cerapachys* subgenus *Parasyscia* which is described below is the first of this particularly rare subgenus to be recognized from Africa. The genus *Simopone* has been thought to be allied with the Neotropical *Cylindromyrmex* in a tribe of Ponerinae, but perhaps should be placed in the Cerapachyinae. The *Simopone* worker has the body proportions of that of *Cerapachys* and of *Phryacaces*, being a stout, cylindrical ant with massive petiole and postpetiole, the latter sharply constricted from the gaster. It similarly has short, stout antennae, is heavily sculptured, and has a pilosity of long, fine hairs which do not conceal the integument. While *Simopone* in Africa appears to be arboreal, *Cerapachys* and *Phryacaces* in Africa are known only as terrestrial ants.

The ants were taken in Equatorial Africa by me as biologist to the Central African Expedition of the American Museum of Natural History, Dr. James L. Clark, Leader. Holotypes and cotypes are deposited in the collections of this museum.

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*Cerapachys (Parasyscia) nitida*, new species

WORKER: Length, extended, 3.3–3.4 mm.; of thorax 0.84 mm. Head in front view, excluding mandibles, one and one-fifth times longer than broad, occiput nearly straight and marginate in front, concave behind, the corners produced behind as rounded carinae; sides slightly convex, widest apart at the level with the posterior margin of the eyes; anterior clypeal margin convex; frontal lobes rounded, sub-vertical, not concealing antennal insertions, not appreciably prolonged posteriorly as carinae; eye small (about 0.1 mm.), feebly convex, situated very slightly closer to the anterior than to the posterior border of the head; antennal scrobes deep, becoming rapidly shallow posteriorly, bordered laterally by carinae of the cheeks which bear three or four tubercles on their crests, the most anterior of which extends beyond the sides of the head; antennae eleven-segmented; scapes extending farther back than the posterior margins of the eyes, stout and clavate; first funicular segment goblet shaped, second greatly compressed, three to nine gradually elongating, and terminal segment equal in length to the preceding seven; mandibles short, stout, convex, and with denticulate cutting margin.

Thorax in side view evenly convex above to the marginate epinotum, from above rectangular with convex anterior and slightly concave epinotal borders, less than twice as long as broad; epinotal angle and sides evenly carinate, no teeth, declivous surface plane. Petiole rectangular from above, about two-thirds as broad as postpetiole, about one and one-third times broader than long, sides feebly convex, anterior and posterior border nearly plane and carinate. Postpetiole from above about one and one-half times broader than long, broader behind than in front, sides feebly convex, posterior border straight. Gaster subovate with straight anterior border, first gastric segment much larger than the following segments taken together, pygidium flat and margined by short spines, sting long and stout. Legs short and stout, femora of middle and hind legs about 1.3 times longer than tibiae.

Shining, sparsely punctate. Head and thorax finely and evenly punctate, punctations of pedicel coarser and more close together, of gaster much finer and more widely spaced; appendages punctate. Pilosity of moderately abundant and short yellowish hairs, becoming more numerous posteriorly. Append-

ages sparsely pilose and with a scanty pubescence not obscuring integument.

Piceous, appendages a medium brown.

FEMALE (ALATE): Length, extended, 3.6 mm.; of the thorax (excluding neck) 1.03 mm.; of forewing 2.65 mm. Similar to the worker with the usual sexual differences. Head in front view, excluding mandibles, 1.15 times longer than broad at a level with the posterior margin of the eyes; eyes small (about 0.16 mm.), situated approximately in the middle of the head, ocelli in a close triangle near the occiput; mandibles short, stout, convex, finely denticulate; antennal scape short, clavate, terminal funicular segment over two-thirds the length of the preceding funicular segments taken together. Thorax convex above, impressed at the mesonotum and with marginate epinotum. Petiole marginate anteriorly and posteriorly; postpetiole 1.6 times longer than the petiole. Gaster with flattened pygidium margined by spines irregular in development and height, becoming larger posteriorly; sting long, stout, exserted; wings pale, with light brown stigma. Sculpturing, pilosity, and color as in the worker.

TYPES: Holotype and cotypes: Workers and alate females of one colony taken March 17, 1948, 10 miles east of Stanleyville, Belgian Congo. The ants were among humus and fallen leaves on top of an old fallen log in rain forest. They showed great reluctance to leave the moist litter with which they were gathered and remained in this for over 24 hours before time was available for examination. At this time, when removed, the ants crawled actively about, holding their antennae with about an 80° angle between them and directly in front of the head. The alates, which crawled actively about, did not attempt flight though apparently mature. In life the ants appeared black and shiny.

Since the other known species of *Cerapachys* in Africa have twelve-segmented antenna, the present species is easily distinguished on that basis alone. Aside from this character, it would run in Arnold's key to *cribrinodis* Emery, which is also larger (3.7–4 mm.), with larger eyes and with other differences. While of the habitus of *sudanensis* Weber, this has markedly larger eyes and is in other ways different.

#### ***Phryacaces braytoni*, new species**

WORKER: Extended length 2.8 mm.; of thorax 0.75 mm.

Head in front view, excluding mandibles, very slightly longer than broad between lateral eye margins, slightly broader in front than behind and broadest through the eyes, occipital margin straight, sides feebly convex; eyes 0.22 mm. in diameter, feebly convex, situated in front of the middle of the head; anterior clypeal margin truncate, the frontal carinae slightly exceeding it; mandibles short, stout, convex, with a series of minute denticles on the cutting margin; frontal carinae subvertical, distinctly separate from one another, anteriorly convex, antennal fossa margined laterally by a short carina which reaches the antero-medial border of the eye; antennal scape short, stout, feebly clavate, hardly reaching the posterior margin of the eye, antennae twelve-segmented, segments 5 to 12 gradually thickening and forming an indistinctly four-segmented club. Thorax in side view feebly and evenly convex with evenly concave epinotal declivity, from above rectangular with convex and feebly marginate anterior margin and straight but distinctly marginate epinotal angle. Petiole in side view with perpendicular anterior margin forming a right angle with the dorsal surface which latter forms a convexity with the steeply sloping posterior surface; from above transversely rectangular, about 0.6 times as long as broad, with sharply concave anterior margin forming acute angles with the feebly convex sides; these join the posterior rounded margin without forming teeth. Postpetiole in side view convex above, much thicker than the petiole and about as thick as the following segment, from above, about 1.3 times broader than the petiole, convex anteriorly and rounding laterally into the convex sides, posterior margin truncate. Gaster small and ovate, slightly broader than the postpetiole, sting exerted. Legs of moderate proportions and slender.

Shining, feebly sculptured, the head, thorax, and petiole with fine piligerous punctations and a faint vermiculation, the postpetiole densely punctate, gaster and appendages feebly punctate. Pilosity of moderately long, sparse, pale yellowish hairs which become more numerous on the gaster, and of a fine, oblique pubescence especially on the postpetiole, gaster, and appendages.

Color ferruginous except on the lower postpetiole and gaster which are blackish brown to black.

**TYPES:** Holotype and cotype: Two workers taken January 16, 1948, about 29 miles by trail southwest of Mtito Andei,

Kenya. The ants were taken at the edge of a pool, containing several hippopotamuses, under a pile of lava rocks close to the origin of the stream forming it. One worker was first seen crawling over damp ground covered with short grass which was trampled by hippopotamuses, rhinoceroses, baboons, and other mammals. It crawled in typical cerapachyine fashion, beating antennae wasp-like, and walking close to the ground. Realizing the rarity of such ants, the party was persuaded to halt until I could find a second specimen which was eventually found nearby. The ants were thus not traveling in a file as such ants sometimes do.

The species, dedicated to my youthful companion, Brayton Wilbur, Jr., is distinctive in its small size, lack of sharp sculpturing, and gaster sharply contrasting in color with the rest of the body. The petiole lacks the teeth forming the posterolateral angles which most African species possess.

#### ***Phryacaces vespula*, new species**

WORKER: Length, extended, 3.4 mm.; of thorax (excluding neck) 1.1 mm. Head, excluding mandibles, slightly longer than broad, occipital margin feebly concave, corners rounded, sides convex with head broadest at a level with the posterior margin of the eyes, inferior posterior angles produced as small, rounded laminae which continued forward as gradually reducing carinae. Eyes elliptical, moderately convex, and of moderate size, situated near the middle of the head. Frontal carinae converging posteriorly and ending at a level about at that of the middle of the eyes, frontal lobes produced as subvertical, rounded, concave lamellae protruding slightly over the anterior clypeal margin. Carinae of cheeks produced above as a thick, flattened surface, divergent anteriorly and projecting as rounded teeth. Mandibles short, convex, and finely denticulate. Antennal scapes extending to a level with the posterior border of the eyes, clavate, bowed, funicular segments short and broad, terminating as a gradually developed four-segmented club.

Thorax in profile evenly convex, without trace of sutures; from above appearing rectangular with sides slightly impressed medially, anterior margin convex, and posterior or epinotal angle feebly concave, marginate and laterally produced as rounded angles rather than teeth. Petiole rectangular from above, one and one-half times broader than long, anterior margin

feebly concave, sides slightly divergent posteriorly and convex, posterolateral angles produced as rounded teeth. Postpetiole slightly broader than petiole, squarish, with sides and anterior margin feebly convex, posterior margin truncate. First gastric segment broader than postpetiole with sides convex and anterior and posterior margins concave, segments 2-4 markedly smaller and everted, sting large and stout. Legs of moderate length and slenderness, hind coxae with a rounded lamella distally and posteriorly.

Shining, with coarse, piligerous punctations. Mandibles with scattered punctations, head from the margin of the eyes to the occiput more densely punctate, a smooth area median to each eye and at the sides of the head; dorsum of thorax with punctations tending to become striate-punctate anteriorly and posteriorly, the central area largely smooth, sides irregularly sculptured with a median smooth area, epinotal declivity finely striate; dorsum of petiole and postpetiole densely punctate, the punctations tending to become confluent; articulating surface between postpetiole and gaster finely and transversely striate; punctations of gaster markedly finer than those elsewhere and abundant; legs punctate.

Pilosity of long, fine, yellowish hairs, most abundant on the postpetiole and gaster, but not obscuring the integument. Pubescence of fine, reclinate, yellowish hairs most abundant distally on the appendages, but not so numerous as to conceal the shining integument.

Piceous, the color on the appendages gradually diluting to a medium brown distally.

HOLOTYPE: One worker taken February 17, 1948, in central Kavirondo, Kenya, at an altitude of nearly 5000 feet. A second worker belonging to the same colony was also taken.

Differing from a paratype and nidotype of *P. langi* Wheeler chiefly in size, sculpturing, and color. The size is slightly smaller, the head less abundantly and deeply punctate, the thorax and petiole above lack the deep, even rugosities of *langi*, the postpetiole is markedly less marginate in front, and the color of the appendages darker. The two, however, are closely related. *P. foreli* Santschi apparently has a thorax even more rugose than *langi*, while *P. braunsi* Emery is described as entirely and finely punctate.

The ants were taken at the side of a small stream as they

foraged over exposed clay soil and short, green grass, wet from the dew of the early morning. When alarmed by my motions in capturing them the ants beat their antennae in front, wasp-like, so rapidly as to blur. The common ant here was *Myrmicaria eumenoides* Gerstaëcker.

What is probably the chief stridulating surface is well shown by the large, transversely ridged articulation between the post-petiole and gaster. The gastric segments are more flexible here than in many ants, and sounds are doubtless produced by rubbing one segment over the other.

### **Simopone wilburi, new species**

WORKER: Length, extended, 5.4 mm., of thorax (excluding neck) 1.4 mm. Head, excluding mandibles, 1.4 times longer than broad back of eyes; occipital margin concave, sides concave, anterior clypeal margin truncate; eyes situated in the middle of the sides of the head, large, somewhat ovate, black, and convex; mandibles short, stout, convex, with broad cutting margin which is finely denticulate; sharply marginate antennal scrobes are deep at the antennal insertions and become shallow as they extend nearly to the anterior margin of the eyes; frontal carinae extend to a level with the anterior margin of the eyes, where they are low and divergent, extending anteriorly they become higher and terminate as low, evenly convex frontal lobes which conceal the antennal insertions only when the head is viewed from the front; below the scrobes are low, rounded genal carinae; antennal scapes stout and clavate, not reaching a level with the middle of the eyes; first funicular segment goblet shaped, second and third clearly broader than long, more distal segments gradually enlarging to an indistinct three- or four-segmented club, terminal three segments approximately equal in length to the preceding taken together. Thorax in side view evenly and slightly convex, the promesonotal suture very slightly indicated; from above, including epinotum, rectangular, anteriorly and posteriorly marginate, the anterior border feebly convex, the posterior epinotal border concave, over twice as long as broad, the sides feebly impressed and slightly broader through the meso-epinotum than through the pronotum; no epinotal teeth, the declivous surface flat, the lateral margins carinate. Petiole from above trapezoidal, corners angulate, broader behind than in front, slightly broader than long, anterior and posterior borders

marginate and truncate, sides convex. Postpetiole longer and broader than petiole, longer than broad and with corners rounded instead of angulate. Gaster elongate with segments fully extended, pygidium not markedly depressed and bordered on each side with seven to nine acute, short spines, sting long and stout. Legs of moderate proportions and length.

Shining; head with scattered, large, shallow punctations, longitudinally striolate between the eyes and clypeus; thorax with similar scattered punctations, the sides with several smooth areas; petiole and postpetiole with similar, but more numerous and more evenly distributed punctations; gaster finely and shallowly punctate.

Pilosity of long, fine, yellowish, reclinate hairs most numerous on the pedicel and gaster, the gaster in addition near the apex with scattered, much longer hairs backwardly directed. Pubescence scattered and fine, most abundant on the appendages distally, but not obscuring the integument.

Piceous; mandibles, tip of gaster, and trochanters dark brown, antennae somewhat lighter brown, tibiae and tarsi brownish yellow.

HOLOTYPE: One worker taken February 24, 1948, about 17 miles north of Beni, eastern Belgian Congo. The locality is near the eastern edge of the Ituri part of the great Congo Forest. The ant was taken as it was rapidly crawling up a tree in dense shade at a height of about 6 feet. The species is evidently arboreal like *Simopone marleyi* Arnold, which was taken in hollow stems of a castor-oil plant in South Africa.

The species is near *S. schoutedeni* Santschi which is comparable in size, but this has, among other differences, more extended antennal scrobes, a rectangular instead of trapezoidal petiole with the corners less angulate, and finer punctation of the pedicel.



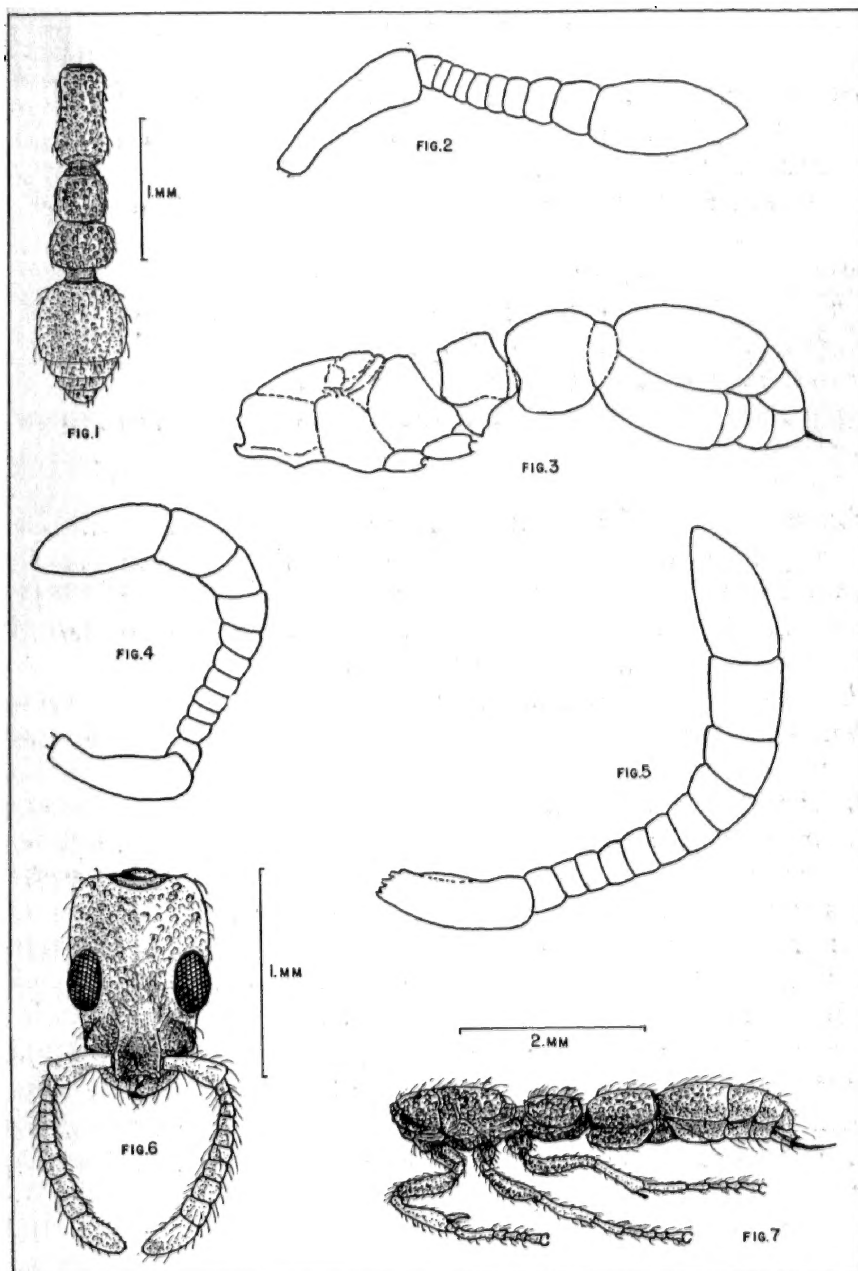


FIG. 1. Dorsal view of thorax and abdomen of worker of *Cerapachys* (*Parasyscia*) *nitida*, new species.

FIG. 2. Outline of worker antenna of *Cerapachys* (*Parasyscia*) *nitida*, new species.

FIG. 3. Lateral outline of female of *Cerapachys* (*Parasyscia*) *nitida*, new species.

FIG. 4. Outline of worker antenna of *Phryacaces* *braytoni*, new species.

FIG. 5. Outline of worker antenna of *Phryacaces* *vespula*, new species.

FIG. 6. Frontal view of head of worker of *Simopone* *wilburi*, new species.

FIG. 7. Lateral view of body and legs of worker of *Simopone* *wilburi*, new species.